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by
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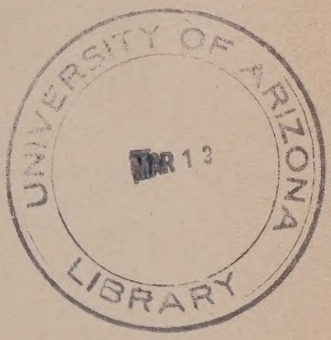

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Growing Strawberries In Idaho

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With a wise choice of varieties, strawberries may be grown successfully both for home use and for local markets in practically all parts of Idaho where general farm crops are grown. A small bed of strawberries is one of the most valuable parts of the home garden. From 100 to 150 feet of row devoted to this crop will supply an average family with berries for eating fresh, and for canning, freezing, and preserving.

Consumers have a preference for locally grown strawberries. Such berries are usually in better condition than those shipped in from other places. Growing strawberries for home markets has been profitable in many parts of Idaho. Roadside marketing of the fresh berries offers good opportunities near the larger cities and towns.

Location of the Planting

It will pay to choose the best land you have for strawberries. Fertile, well drained land rich in organic matter is best. Strawberries will grow on an alkaline soil, but they prefer one that is slightly acid. Soils with a high lime content are not good. Such soils, which are common in the Snake River Valley, make the plants chlorotic (yellow leaved), and yields usually are poor. Virgin soils newly cleared from forest are ideal.

If you are likely to have late spring frosts, plant on some of your higher land. Rich bottom lands are good if they are close enough to a large river or lake to avoid late frosts. If you want early berries, plant on a south slope. If earliness is not important, a north slope is better. Such a location delays blossoming, holds moisture longer, and the plants usually come through the winter with less injury.

Varieties to Grow

You can depend on a few varieties, like Dunlap and Premier (Howard 17), to do well almost anywhere strawberries will grow in Idaho. There are better varieties than these provided they are grown where they are best adapted. The experience of other growers in your area should help you in deciding which varieties to plant. The following notes on varieties adapted to Idaho may be helpful.

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EARLY VARIETIES

Howard 17 (Premier)—Berry medium to large, red throughout; quality good but not equal to some of newer varieties. Plants hardy, blossoms somewhat resistant to frost injury. One of the earliest to ripen. Adapted to a wide range of soil and climatic conditions. Recommended for home use and local markets.

Dorsett—Berry large, bright red color, flavor mild, dessert quality excellent. Too soft for long shipment, but one of the most promising of the newer varieties for home use and local markets. Has proved especially popular in the Boise and Payette valleys. It has a tendency towards excessive runner formation.

Fairfax—Berries large, firm, and of a deep, bright red color; quality excellent. Mild flavored and especially popular with those who cannot tolerate highly acid fruits. Promising both for local markets and for shipping. Has been especially popular in the northern panhandle.

MIDSEASON VARIETIES

Dunlap—An old, popular variety in Idaho recommended for home use and local markets. Very hardy and somewhat resistant to drought. Berries of medium size, rich crimson with scarlet flesh. Too soft for shipping. Prefers a heavy soil. Generally well adapted to most parts of the state.

Redheart—Fruit medium to large, color deep red throughout. Quality excellent for consumption fresh, and an especially fine variety for canning and freezing. A good shipper and keeper and a heavy yielder. Generally well adapted and popular in all parts of Idaho where strawberries can be grown. Recommended for both home use and market.

Marshall—Berry large, irregular in form, crimson with red flesh; highest dessert quality, flavor mild. Good for home use and local markets but too large and soft for shipping. A leading variety for canning and freezing. Favorably reported from both high and low altitudes in Idaho. Does best on fertile, irrigated land. Varies in ripening from midseason to late.

Belt (William Belt)—Large, irregular, scarlet berries, red to center; soft to fairly firm, sweet, of high quality. A dependable local market variety for Idaho when grown on a highly fertile soil.

LATE VARIETIES

Aroma—Berry medium to large, quality fair to good, scarlet

with red flesh. Fruit firm and a good shipper. A highly productive variety on heavy clay soils. Recommended primarily to extend the season for local markets. Ripens from midseason to late.

Gandy—Berry large, irregular, deep red throughout, juicy, quality good to excellent; inclined to be hollow at the core. Most productive on heavy clay soils. A better quality late berry than Aroma. Well adapted to most of Idaho, including the upper Snake River Valley.

EVERBEARING VARIETIES

Mastodon—Probably the most productive and most widely adapted of the everbearing varieties. Fruit large, attractive red color, flavor mildly acid, quality only fair. Should do well almost anywhere in Idaho where strawberries can be grown. Recommended for small commercial plantings where there is a good market demand for fall berries. Rockhill is a better variety for home use due to its higher quality.

Rockhill (Wayzata)—Fruit large, of a clear, rich crimson color with red flesh; quality unexcelled. Less productive than Mastodon; therefore, not so profitable as a market variety. Recommended as the best everbearing variety for home use in Idaho.

Gem—Size medium to large; of a beautiful, clear red color. Flavor rather tart; quality good, but inferior to Rockhill. Reported to do well under conditions of heavy snow, low temperatures, and short growing season. A good yielder.

Other varieties that have been grown in Idaho and seem worthy of further trial are Catskill, Streamliner, Twentieth Century, Utah Centennial, Narcissa, and Shasta.

Growing New Plants

Strawberries are reproduced by runners. These new, young plants take root easily if the soil is loose and moist. A single original plant often forms dozens of runners in a season. Well rooted runners are dug in the fall, tied in bundles of 25 plants each, and stored in a moist room at 26° to 34° Fahrenheit for planting in the spring. They may, however, be transplanted as soon as dug in the fall, or they may be both dug and transplanted in the spring.

Some varieties, like Rockhill, do not ordinarily form many runners. They can be forced into some runner production by keeping the blossoms picked off, irrigating often, and fertilizing with nitrogen. Use ammonium sulphate as a side dressing at 150 to 200 lb. per acre, or its equivalent in some other fertilizer containing readily available nitrogen.

Buying and Handling Plants

Be sure you buy only healthy, vigorous plants. Well rooted runners taken from your own field or from a neighbor's are satisfactory if they are free from disease. In most cases it probably is best to buy plants from a nursery known to be reliable.

Open the package as soon as a shipment of plants arrives. The roots may need to be watered immediately. The leaves should have a fresh, green appearance, and there should be an abundance of light-colored, fleshy roots. If the plants have dried or blackened roots, or appear otherwise weak and unhealthy, they are not worth planting and should be returned.

If you cannot set the plants in the field soon after they arrive, you can store them successfully for 2 or 3 weeks in a fairly damp cellar at a temperature of 30° to 40°. Keep the roots moist but not wet. Leave the tops exposed to the air and do not wet them.

To hold plants for longer periods it is best to cut the bundles, separate the plants somewhat, and then plant them temporarily, close together, in sand or soil. Cover the roots completely and firm the soil about them. You can keep the plants in good condition for 6 weeks or more if you use this method and plant them in the shade on the north side of a building.

Setting the Plants

Strawberries are usually planted in early spring. Fall planting (late August or early September) is satisfactory in the warmer parts of Idaho, but it is not safe where the ground is likely to freeze to a depth of 4 inches or more. Some growers prefer fall planting because the plants are well established by spring and spring work is eased. However, the advantages of fall planting do not always justify the extra expense of keeping the planting free of weeds in late fall and early spring. For most of Idaho, spring planting is better.

Plant during cool, cloudy weather if possible. Keep the roots moist and the plants shaded until they are set. On vigorous plants you can shorten the roots about ¼ to ⅓. This makes planting easier. Spread the roots out fan-shape as you plant. If it is necessary to plant in bright weather, a light mulch of straw to shade the plants and reduce moisture loss is helpful.

Unless the soil is quite moist and the weather cloudy, be sure to get water to the plants as soon as possible after they are set. Failure to do this may give you a poor stand. In irrigated districts where strawberries are usually set on a raised bed, water should be applied in a furrow between beds as soon as possible. Under dry-land conditions, make a small depression at the side of each plant and

pour in about a pint of water. As soon as the water has been soaked up fill the depression with loose top soil.

Remove all blossoms and buds at planting time and at 1- or 2-week intervals through the first growing season. Allowing the plants to bear the first season weakens them and reduces yields the next year. Spring-planted everbearing varieties may be permitted to bear a fall crop the first year.

Training Systems

On rich soil with ample water, most varieties of strawberries produce a large number of runner plants in a single season. Up to a certain point the production of runner plants will increase yields, but if too many runners are allowed to root they compete with each other to the point where both yields and quality are reduced. The training system that gives the heaviest yields is one that allows the rooting of the largest number of runners without serious crowding, as in the matted row system. The hill system, in which no runners

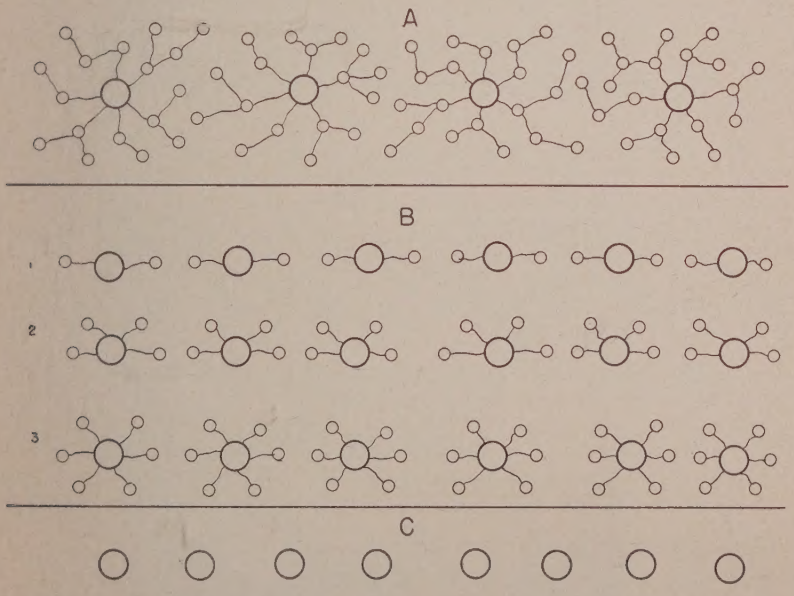

Figure 1.—Systems of training strawberry plants. Large circles represent mother plants, small circles represent runner plants. **A**—matted row system with spaced plants. **B**—different forms of hedgerow system, including, (1) single hedgerow, (2) double hedgerow, and (3) triple hedgerow. **C**—hill system, in which all runner plants are removed as they form.

are allowed to root, gives the lowest yields but the best berries. The hedgerow system is a compromise between these two. In it a small number of runners, carefully spaced, are allowed to root.

For illustrations of the different training systems see Figure 1.

The Matted Row System.—Set the plants in rows 36 to 42 inches apart, with the plants 15 to 30 inches apart in the row. You can let the runners root where they will, or you can space them 6 to 12 inches apart. The latter method—sometimes called the "spaced row" system—takes extra labor but will often pay in higher yields and better quality berries. When the row is filled with plants to a width of 12 to 15 inches, cut off all additional runners as they form.

Encourage early production of runners. Runners rooted in June will produce from 10 to 15 times as much fruit as runners rooted in October. Varieties that are light in runner production should be fertilized with nitrogen in the spring and irrigated if possible to increase the number of early runners.

The Hedgerow System.—With rows 30 to 36 inches apart space the plants 18 to 24 inches in the row. Allow only a small number of the first runners to root. Space these so that they form one, two, or three rows of plants. (Fig. 1B) Yields per plant are greater than in the matted row system because stronger crowns are formed, but total yield per acre is less because a smaller number of plants are allowed to root.

The Hill System.—Set the plants 18 inches apart in rows 24 to 36 inches apart, or set them 24 to 30 inches apart each way for cross cultivation. Remove all runner plants as they form. This system yields large, high quality berries, but the total production is lower than with the other systems described. The hill system is best adapted to small-scale production of berries for home use where large yields are less important than high quality. It requires least hand labor for weeding.

The following table gives the number of plants needed per acre with the different spacings given above.

Distance between rows	Spacing of plants in the row	No.plants per acre
24	18	14,520
24	24	10,890
24	30	7,260
30	18	11,616
30	30	6,970
36	15	11,616
36	30	5,808
42	15	9,671
42	30	4,836

Preparation of the Land

Weeds usually are the major problems in strawberry growing. For this reason you will get best results on land that produced a cultivated crop the year before you planted the strawberries. A good rotation consists of alfalfa for 2 or 3 years, grain or a cultivated crop with heavy manuring (20 tons per acre) 1 year, and strawberries 2 or 3 years. Plow the land in the fall and harrow or disk it in the spring just before setting the plants. If the soil is low in organic matter plant a green manure crop of rye and winter vetch after fitting the land in the fall. Turn this under as soon as the ground can be worked in the spring. This makes earlier planting possible on soils that are late in drying out. Seed the green manure crop at a rate of 60 pounds of rye and 40 pounds of vetch per acre.

Cultivation

Cultivate strawberries as often as necessary to keep weeds down. Always follow cultivation by hand hoeing or weeding. Do not cultivate deeply. Strawberry roots are shallow and easily injured.

In fruiting years stop cultivating as soon as the berries begin to form. When harvest is over begin regular cultivation again. *Keep the plants growing well and free of weeds between harvest and fall to get a heavy crop the next year.*

Irrigation

In irrigated areas strawberries usually are planted on beds from 4 to 8 inches above the irrigation furrows. During the first year's growth of a new planting, irrigate just enough to keep the plants in good vigor and to encourage early rooting of runners. During the fruiting period, irrigate every 4 to 6 days on light soil and every 7 to 10 days on heavy soil, or irrigate alternate rows after each picking so that there will always be firm soil on one side of the row for the pickers. Less frequent irrigation is needed after harvest, but do not allow the plants to suffer from lack of water at any time. Neglect in this matter may result in greatly reduced yields the next year.

Fertilization

Nitrogen is the most important fertilizer for strawberries in Idaho. Well rotted barnyard manure usually produces the best results. This should be free of weed seeds. Apply this at rates of 10 to 20 tons per acre in the spring before the soil is worked. If manure is not available you can add nitrogen in mineral form. Apply

200 to 400 pounds of ammonium sulphate, or its equivalent in some other form, per acre when the soil is first prepared in the spring. In fruiting years—second and third growing seasons—a good plan is to split the nitrogen application, applying half as a side dressing soon after growth has begun in the spring, and half as a side dressing about the first of August.

Do not use more nitrogen than is necessary to give reasonably good vine growth. Too much causes the berries to be soft. Spring applications of nitrogen are useful mainly to increase yields for the current season. The August application gives a more vigorous growth of runners and increases the next year's crop.

If alfalfa or other field crops in your area are benefited by phosphorous, this fertilizer may also be of value to strawberries. Apply at a rate of 200 to 300 pounds of superphosphate per acre in early spring.

Mulching

A straw mulch is often useful in strawberry growing. Apply it from 2 to 3 inches deep over the entire field in late fall when the soil first begins to freeze. Such a mulch requires from 2 to 4 tons per acre. It will give excellent protection against winter injury. Rake the straw away in the spring, as soon as the plants begin to show a slight yellowing from lack of light. Take it out of the field entirely or, if you wish, leave it between the rows all summer to keep the berries clean. It also helps by holding soil moisture. This is especially valuable in non-irrigated areas. If the field is relatively free of weeds and weed seeds when you put on the mulch, no cultivation and but little hand weeding will be needed during the growing season.

Renewal of the Planting

A strawberry planting usually produces most heavily the second year after planting. The yield is likely to drop sharply after that. Cost of operations increases because of a build-up of weeds, crowding of runners, and increase in diseases and insect pests. This raises a question of how long it will be profitable to keep a planting.

Growers in many commercial strawberry districts destroy their plantings after a single year of fruiting. Growers in other areas keep them for two or three successive crops. Under most Idaho conditions a 2-year period of fruiting probably is most profitable.

If you intend to keep a planting for more than one fruiting year, plan to undertake some form of renewal as soon as a crop is harvested. The objects of renewal are to destroy the less productive plants, keep the better ones, and eliminate competition from an excess of runners. With the matted row system there are two common methods of renewal. One method is to plow out all the plants

from the middle and one side of each row, leaving the plants on the opposite side for fruiting the next year. The plants that are plowed out must be removed by cultivation or in some other way. This may prove troublesome and expensive. Another method is to narrow the row from both sides, leaving a 5-inch strip of plants in the center.

If you are using a training system other than the matted row, any method of renewal that will save the most vigorous, well rooted plants and reduce crowding of runners will help to increase the yield and improve the quality of berries the next year.

Any system of renewal should include nitrogen fertilization and thorough cultivation and weeding.

Harvesting and Handling Strawberries

Be careful in harvesting and handling strawberries. They are soft and highly perishable. It is best to pick only in the cooler hours of the day, but not while the berries are wet. For shipping, pick all the berries that are red on three-fourths or more of their surface. For local market or home use you can allow them to color completely. Instruct pickers to break the stem without squeezing the berry. Assign each picker to a separate row. This makes it easier to supervise the crew and to single out the poor pickers. Harvest strawberries every day or two at the peak of the season.

Common Causes of Poor Yields

Here are some of the most common causes of poor strawberry yields in Idaho. Check the list carefully. You may find what is wrong with your planting if it is not producing as it should.

- ☐ Poor soil and no fertilizer added
- ☐ Weeds are not controlled
- ☐ Too many runner plants allowed to root
- ☐ Too much lime in the soil (leaves are pale yellow with green veins)
- ☐ Planting is old (over 3 years)
- ☐ Blossoms were frosted
- ☐ Plants injured by low winter temperature
- ☐ Cultivation too close or too deep
- ☐ Not irrigated enough
- ☐ General neglect of planting after last crop was harvested. (This is one of the most common causes of poor results with strawberries.)
- ☐ Weather too bad for bees to work during bloom
- ☐ Presence of diseases or insect pests

If diseases are present or suspected, see Idaho Agricultural Experiment Station Bulletin 246, *Diseases of Small Fruits in Idaho.* For information on insect pests of strawberries see Idaho Agricultural Extension Bulletin 129, *Idaho Recommendations for Insect Control.*[1]

[1] These publications may be obtained from your County Extension Agent, or from the Agricultural Experiment Station, Moscow, Idaho, or the Agricultural Extension Service, Moscow or Boise.

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